

Ecological Site Description—Rangeland

Silty–Saline, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE193MT, R060BE580MT

Site Name: Silty–Saline (Si–Sal), 10–14 inches Mean Annual Precipitation (MAP)

Site Number: R058AE193MT, R060BE580MT

Major Land Resource Areas: 58A – Northern Rolling High Plains, North Part
60B – Pierre Shale Plains, North Part

Rangeland Resource Units: 58AE – Sedimentary Plains, East
60BE – Pierre Shale Plains, East

1. Physiographic Features: This ecological site occurs on nearly level to rolling sedimentary plains, terraces and fans. The slopes range from 0–15% but are mainly less than 8%. This site occurs on all exposures and aspect is not significant. This site is very similar to a normal silty ecological site, with some significant variations in plant community composition and production due to the saline soils.

Elevation (feet): 1,900–3,500

Landform: plains, terrace, fan

Slope (percent): 0–15, but mainly less than 8

Depth to Water Table (inches): greater than 60

Flooding: none

Ponding: none

Runoff Class: medium

Aspect: not significant

2. Climatic Features: MLRAs 58A and 60B are considered to have a continental climate characterized by cold winters, hot summers, low humidity, light rainfall, and much sunshine. Extremes in temperature are typical. The climate is the result of this MLRA's location in the geographic center of North America. There are few natural barriers on the northern Great Plains and the winds move freely across the plains and account for rapid changes in temperature. Seasonal precipitation is often limiting for plant growth. Annual fluctuations in species composition and total production are typical depending on the amount and timing of rainfall. See Climatic Data Sheet MLRA 58A, east and 60B, for more details (Section II of the NRCS Field Office Technical Guide). For local climate station information, refer to <http://www.wcc.nrcs.usda.gov>.

Frost-free period (32° F)-days: 105–145

Freeze-free period (28° F)-days: 125–170

Mean annual precipitation (MAP): 10–14 inches

3. Influencing Water Features: None

4. Associated sites: Silty, Clayey, Claypan and Saline Upland.

5. Similar sites: Silty, Clayey, Saline Upland, Saline Lowland.

The Silty site varies by not being salt affected and not having the component of salt tolerant plants.

The Clayey site varies for the same reason, as well as surface texture.

The Saline Upland site is dominated by salt tolerant species, the amount of plant cover is significantly less, and the production is also significantly less.

The Saline Lowland site is also dominated by salt tolerant plants, but the amount of plant cover and potential production is significantly more because of the extra moisture this site receives.

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6. Soils: These soils are more than 20 inches deep and are mainly loams or silt loams, and occasionally, silty clay loams. They are strongly alkaline in the subsoil, usually within 6 to 12 inches of the surface. They tend to be slightly to moderately saline and very strongly alkaline in the upper 2–2.5 feet. In their natural condition, these soils appear very similar to a normal silty ecological site. When tilled, however, they become very salty at the surface, severely limiting plant production and the potential for reseeding or other treatment.

Parent material (kind): alluvium

Parent material (origin): mixed sedimentary deposits

Surface textures: loam, silt loam, silty clay loam

Depth (inches): greater than 20

Soil surface permeability (inches per hour): moderately slow (0.2–0.6)

Available Water Holding Capacity to 40" (inches): 5–8

Drainage Class: well

Salinity/Electrical Conductivity (mmhos/cm): very slightly saline to strongly saline (2–20)

Sodium Absorption Ratio (SAR): 2–40

Reaction (pH) (1:1 water): moderately to very strongly alkaline (7.9–10.0)

6a. Representative Soils: Listed below are soils and map units which characterize this site in various counties. (Reference MT-165, Soil Interpretive Rating Report).

COUNTIES	TYPICAL SOILS	MAP UNIT
Carter (58A)	Alona silt loam	20C, 621C
Custer	Alona silt loam	14B
Fallon	Alona silt loam	20C
Garfield	Alona silt loam	22B
McCone	Alona silt loam	5
Prairie	Alona silt loam	5
Rosebud	Alona silt loam	128, 129
Rosebud	Rahworth loam	152
Wibaux	Cherry silt loam	Ch, Cm

7. Plant Community and Species Composition: The physical aspect of this site is that of grassland dominated by cool season bunch grasses with scattered shrub cover. Approximately 65–75% of the annual production is from grasses and sedges, 5–10% from forbs, and 5–15% is from shrubs and half-shrubs. The canopy cover of shrubs is 0 to 5%.

TABLE 7a.—Major Plant Species Composition, lists plant species composition and production by dry weight for the Historic Climax (HCPC) or Potential Plant Community (PPC) for this site. The Historic Climax or Potential Plant community has been determined by the study of rangeland relict areas, exclosures, or areas protected from excessive grazing. Total annual production has been derived from several data sources, and has been adjusted to represent a typical annual moisture cycle for the site. Reference for plant species names and symbols: USDA–NRCS PLANTS Database at <http://plants.usda.gov>.

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7a. Major Plant Species Composition – Historic Climax/Potential Plant Community

Common Name	Plant Symbol	Plant Group	Percent Comp.	Group Max. %	Mean Annual Precipitation (MAP) (inches)				
					10	11	12	13	14
					(lbs./acre)	(lbs./acre)	(lbs./acre)	(lbs./acre)	(lbs./acre)
Grasses and Sedges 65–75%					506	638	788	1013	1238
Western or Thickspike wheatgrass	PASMELLAL	14	20-40		135-270	170-340	210-420	270-540	330-660
Green needlegrass	NAV14	2	15-35		101-236	127-298	158-368	202-472	248-578
Alkali sacaton	SPAI	1	5-15		34-101	42-127	52-158	68-202	82-248
Inland saltgrass	DISP	15	5-15		34-101	42-127	52-158	68-202	82-248
Needleandthread	HECOC8	10	5-15		34-101	42-127	52-158	68-202	82-248
Bluebunch wheatgrass *	PSSP6	2	0-10		0-68	0-85	0-105	0-135	0-165
Montana wheatgrass	ELLAA	14	0-10		0-68	0-85	0-105	0-135	0-165
Alkali bluegrass	POJU		0-5		0-34	0-42	0-52	0-68	0-82
Nuttall's alkaligrass	PUNU2	2	0-5		0-34	0-42	0-52	0-68	0-82
Threadleaf sedge	CAFI	12	1-5}	15	7-101 No more than 34 for any one	9-127 No more than 42 for any one	10-157 No more than 52 for any one	14-202 No more than 68 for any one	16-247 No more than 82 for any one
Needleleaf sedge	CADU6	16	1-5}						
Blue grama	BOGR2	15	1-5}						
Prairie junegrass	KOMA	12	1-5}						
Sandberg bluegrass	POSE	12	1-5}						
Plains reedgrass	CAMO	16	1-5}						
Bottlebrush squirreltail	ELEL5	10	1-5}						
Other native grasses	2GP		1-5}						
Forbs 5–10%					68	85	105	135	165
American vetch	VIAM	18	1-5}	10	7-68 No more than 34 for any one	9-85 No more than 42 for any one	10-105 No more than 52 for any one	14-135 No more than 68 for any one	16-165 No more than 82 for any one
Scarlet globemallow	SPCO	20	1-5}						
Other native forbs	2FP		1-5}						
Shrubs and Half-shrubs 5–15%					101	127	157	202	247
Winterfat	KRLA2	35	1-5	15	7-34	8-42	10-52	14-68	16-82
Nuttall's saltbush	ATNU2	34	1-5		7-34	8-42	10-52	14-68	16-82
Greasewood	SAVE4	37	1-10}		7-101 No more than 68 for any one	8-127 No more than 85 for any one	10-157 No more than 105 for any one	14-202 No more than 135 for any one	16-247 No more than 165 for any one
Silver sagebrush	ARCA13	36	1-10}						
Fringed sagebrush	ARFR4	38	1-10}						
Wyoming big sagebrush	ARTRW8	37	1-10}						
Other native shrubs	2SB		1-10}						
Broom snakeweed	GUSA2	37	0-T	T	T	T	T	T	
Plains pricklypear	OPPO	38	0-T						
Total Annual Production (lbs./acre)			100%		675	850	1050	1350	1650

* Bluebunch wheatgrass tends to increase in the western part of this RRU.

7b. Plant Group Descriptions: Plant functional groups are based on: season of growth, growth form, stature, type of root system, and ecological response to disturbance. Refer to Field Office Technical Guide (FOTG) Section II for a complete description of plant groups.

8. Total Annual Production: Total annual production is a measurement of the total aboveground production (dry weight) of all major plant species that occur on the site during a single growth year, regardless of accessibility to grazing animals. This information is listed at the bottom of TABLE 7a.—Major Plant Species Composition. Average production values are listed for each incremental inch of precipitation for the site.

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9. Cover and structure: The following table shows the approximate amounts of basal cover, canopy cover, and plant heights for this site in the Historic Climax or Potential Plant Community.

COVER TYPE	BASAL COVER (%)	CANOPY COVER (%)	AVERAGE HEIGHT (inches)
Cryptogams	T – 1	0 – T	0.25
Grasses/sedges	10 – 15	65 – 75	24
Forbs	1 – 3	1 – 5	18
Shrubs	0 – 1	T – 1	24
Litter	50 – 60		
Coarse fragments	0 – T		
Bare ground	15 – 20		

10. Ecological Dynamics: This site developed under Northern Great Plains climatic conditions, which included the natural influence of large herbivores and occasional fire. The plant community upon which interpretations are primarily based is the Historic Climax Plant Community (HCPC) or Potential Plant Community. This community is described as a reference to understand the original potential of this site, and is not always considered to be the management goal for every acre of rangeland. The following descriptions should enable the landowner or manager to better understand which plant communities occupy their land, and assist with setting goals for vegetation management. It can also be useful to understand the environmental and economic values of each plant community.

This site is considered moderately resilient to disturbance as it has only moderate soil limitations for plant growth. Changes may occur to the Historic Climax Plant Community due to management actions and/or climatic conditions. Under continued adverse impacts, a moderate decline in vegetative vigor and composition will occur. Under favorable vegetative management treatments the site can more readily return to the Historic Climax Plant Community (HCPC).

Continual adverse impacts to the site over a period of years results in a departure from the HCPC, with a decrease of the taller, more palatable species such as **green needlegrass, alkali sacaton, winterfat and Nuttall's saltbush**. These plants will be replaced by **inland saltgrass, needleandthread, western or thickspike wheatgrass, threadleaf sedge, and blue grama**. Disturbance induced forbs, **fringed sagewort, Wyoming and silver sagebrush, and greasewood** will become more prevalent.

Continued deterioration results in increased amounts of **bottlebrush squirreltail, broom snakeweed and cactus**. The amount of salts on the soil surface can potentially increase as the plant cover deteriorates and bare ground increases.

Plants that are not a part of the climax community that are most likely to invade are **annual bromes, six-weeks fescue, false buffalograss, and thistles**.

10a. Major Plant Community Types: Following are descriptions of several plant communities that may occupy this site.

Plant Community 1: Tall and Medium Grasses/ Forbs/ Shrubs: This is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC) or Potential Plant Community (PPC) for this site. This plant community contains a good diversity of tall and medium height grasses (**green needlegrass, western or thickspike wheatgrass, alkali sacaton**), and short grasses and sedges (**threadleaf or needleleaf sedge, prairie junegrass, Sandberg bluegrass, plains reedgrass, and blue grama**). There are forbs, shrubs, and half-shrubs that occur in smaller percentages, including winterfat and Nuttall's saltbush.

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This plant community is well adapted to the Northern Great Plains climatic conditions. The diversity in plant species and the presence of tall, deep-rooted perennial grasses allows for high drought tolerance. Individual species can vary greatly in production depending on growing conditions (timing and amount of precipitation and temperature). Plants on this site have strong, healthy root systems that allow production to increase significantly with favorable precipitation. Abundant plant litter is available for soil building and moisture retention. Plant litter is properly distributed with very little movement off-site and natural plant mortality is very low. This plant community provides for soil stability and a functioning hydrologic cycle.

Plant Community 2: Medium and Short Grasses / Medium Shrubs: Slight disturbances and degradation to the HCPC will result in a plant community where the taller, more palatable grasses such as green needlegrass are replaced by increasing amounts of **western wheatgrass, needleandthread, short grasses, and inland saltgrass**. The shrub component will tend to have increasing amounts of either **greasewood or Wyoming big sagebrush**. Typically, the component of salt tolerant species is mainly only one species.

Grass biomass production and litter become reduced on the site as the taller grasses disappear, increasing evapotranspiration and reducing moisture retention. Additional open space in the community can result in undesirable invader species. This plant community provides for moderate soil stability.

Plant Community 3: Short Grasses / Medium Shrubs / Half-shrubs: With continued heavy disturbance the site will become dominated by **inland saltgrass, shrubs such as greasewood, half-shrubs such as broom snakeweed, and annuals**. This site tends to occur more in 60B, where the sagebrush is essentially replaced by greasewood.

Plant Community 4: Short Grasses/ Cacti/ Annuals: Further disturbance will result in a community that is dominated by **plains pricklypear, Wyoming big sagebrush, inland saltgrass, and annuals**. This occurs mainly in 58A. The remaining species will still be plants such as blue grama, Sandberg bluegrass with some western wheatgrass and needleandthread. This site is not highly productive and large areas of bare ground between the plants is common.

Plant Communities 3 and 4 have lost many of the attributes of a healthy rangeland, including good infiltration, minimal erosion and runoff, nutrient cycling and energy use.

Plant Community 5: Annual Grasses and Forbs: This barren, low producing community is the result of continuous farming and summer fallowing on this site. As salts are brought up to the surface the soils become extremely limited for plant growth, and the community shifts to one dominated by invader **annual grasses and forbs, typically Japanese brome, cheatgrass, kochia, and Russian thistle**. This community is very difficult to restore to a more productive stage.

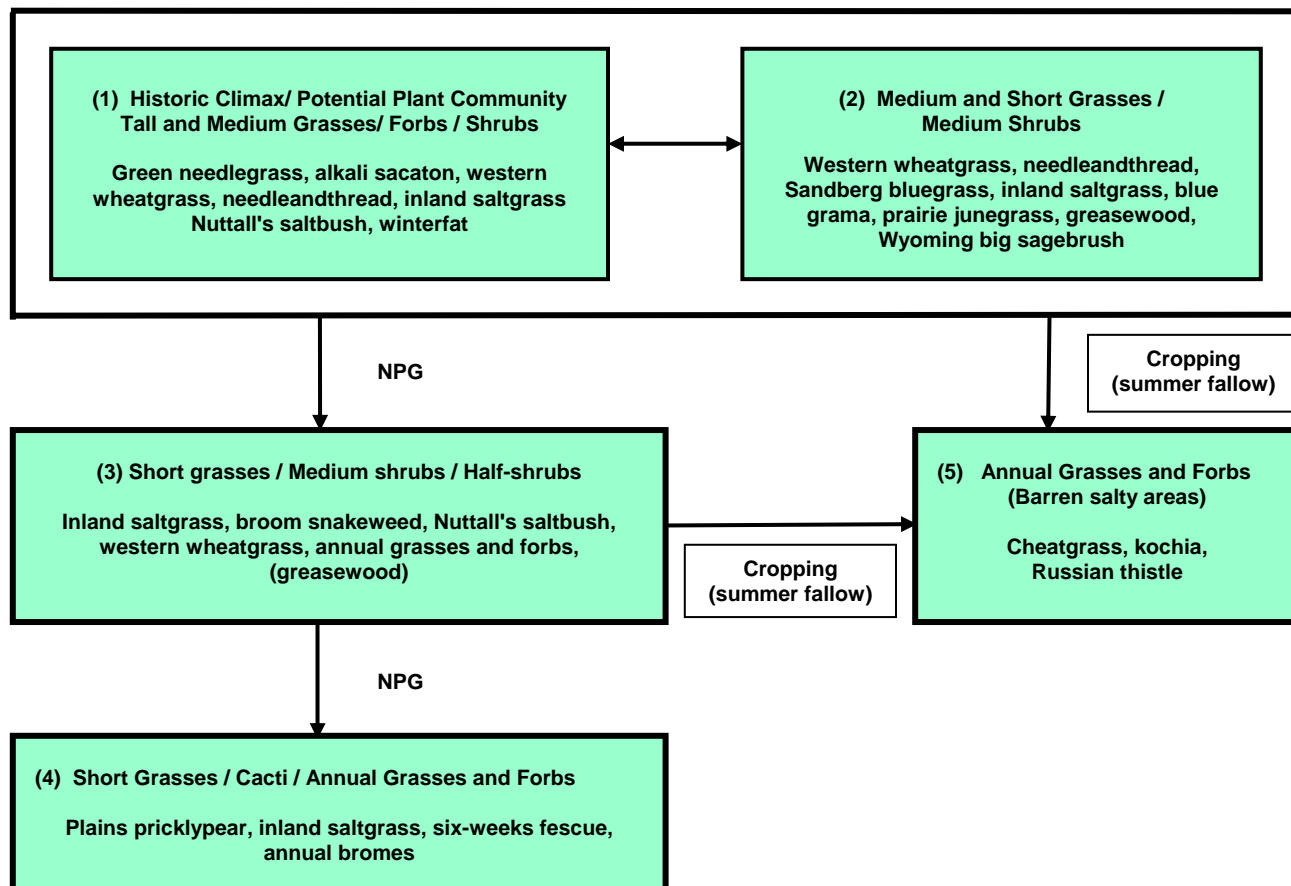
10b. Plant Communities and Transitional Pathways (State and Transition Model): Transitions in plant community composition occur along a gradient that is not linear. Many processes are involved in the changes from one community to another. Changes in climate, elevation, soils, landform, fire patterns and frequency, and grazing all play a role in determining which of the plant communities will be expressed. The following model outlines the various plant communities that may occur on this site and provides a diagram of the relationship between plant community and type of use or disturbance.

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Plant Communities and Transitional Pathways (diagram)



Smaller boxes within a larger box indicate that these communities will normally shift among themselves with slight variations in precipitation and other disturbances. Moving outside the larger box indicates the community has crossed a threshold (heavier line) and will require intensive treatment to return to Community 1 or 2. Dotted lines indicate a reduced probability for success.

NOTE: Not all species present in the community are listed in this table. Species listed are representative of the plant functional groups that occur in the community.

PG = Prescribed Grazing: Use of a planned grazing strategy to balance animal forage demand with available forage resources. Timing, duration, and frequency of grazing are controlled and some type of grazing rotation is applied to allow for plant recovery following grazing.

NPG = Non-Prescribed Grazing: Grazing which has taken place that does not control the factors as listed above, or animal forage demand is higher than the available forage supply.

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11. Plant Growth Curves: Growth of native cool-season plants begins in April and continues to the end of June. Native warm-season plants begin growth about mid May and continue to about the end of August. Green up of cool-season plants can occur in September through October when adequate soil moisture is present. The following tables show the approximate percentage of total growth by month that is expected to occur in various plant communities on this site for a "typical" moisture year.

Growth Curve Number: MT0808

Growth Curve Description: Includes all eastern sedimentary plains sites in the 10–14" p.z. with deep, upland soils, having mainly cool season plants.

Totals for Each Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	25	30	30	5	5	5	0	0	0

Cumulative Totals by Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	0	25	55	85	90	95	100	0	0	0

Growth Curve Number: MT0811

Growth Curve Description: Includes all eastern sedimentary plains sites in the 10–14" p.z. with droughty upland soils, having mainly cool season plants.

Totals for Each Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	5	25	35	30	5	0	0	0	0	0

Cumulative Totals by Month

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
0	0	5	30	65	95	100	0	0	0	0	0

12. Livestock Grazing Interpretations: Managed livestock grazing is suitable on this site as it has the potential to produce an abundance of high quality forage. Management objectives should include maintenance or improvement of the plant community. Shorter grazing periods and adequate re-growth after grazing are recommended for plant maintenance and recovery. Heavy stocking and season long use of this site can be detrimental and will alter the plant community composition and production over time.

Whenever Plant Community 2 occurs (medium and short grasses), grazing management strategies need to be implemented to avoid further deterioration. This community is still stable, productive, and healthy provided it receives proper management. This community will respond fairly quickly to improved grazing management including increased growing season rest of key forage plants. Grazing management alone can usually move this community back to one more similar to potential if a good seed source of the taller grasses still exists.

Once this site is occupied by Plant Community 3 or 4, it will be more difficult to restore it to a community that resembles the potential with grazing management alone. Additional growing season rest is often necessary for re-establishment of the desired species and to restore the stability and health of the site. Additional rest or accelerated practices are often necessary for re-establishment of the desired species and to restore the stability and health of the site.

Plant Communities 4 and 5 have extremely reduced forage production (<300 pounds per acre), and are comprised of mostly of non-preferred species. As salts are brought up to the surface the soils become extremely limited for plant growth. These communities are very difficult to restore to a more productive stage.

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12a. Calculating Safe Stocking Rates: Proper stocking rates should be incorporated into a grazing management strategy that protects the resource, maintains or improves rangeland health, and is consistent with management objectives. Safe stocking rates will be based on useable forage production, and should consider ecological condition and trend of the site, and past grazing use history.

Calculations used to determine a safe stocking rate are based on the amount of useable forage available, taking into account the harvest efficiency of the animal and the grazing strategy to be implemented. Average annual production must be measured or estimated to properly assess useable forage production and stocking rates.

12b. Guide to Safe Stocking Rates: The following charts provide a guide for determining a safe stocking rate. Animal Unit Month (AUM) figures are based on averages of forage production from data collected for this site over several years. The characteristic plant communities and production values listed may not accurately reflect the productivity of a specific piece of land, hence this table should not be used without on-site information as to current forage productivity of the site. Adjustments to stocking rates for each range unit must be made based on topography, slope, distance to livestock water, and other factors which effect livestock grazing behavior.

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12c. Stocking Rate Guide:

Major Plant Community Dominant Plant Species	MAP	Total Production (pounds/ac)	Cattle			Sheep		
			Forage Production	AUM/ac	Ac/AUM	Forage Production	AUM/ac	Ac/AUM
1. Tall and Medium Grasses, Forbs, Shrubs (HCPC/PPC) <i>Green needlegrass, alkali sacaton, western wheatgrass, needleandthread, inland saltgrass, Nuttall's saltbush, winterfat</i> (S.I. >70%)	13–14"	1350 - 1650	1100 – 1300	.35 - .40	2.5 – 2.9	1150–1400	.36 - .44	2.3 – 2.8
	10–12"	850 - 1050	550 – 850	.17 - .27	3.7 – 5.9	575–900	.18 - .28	3.6 – 5.6
2. Medium and Short Grasses, Medium Shrubs <i>Western wheatgrass, needleandthread, Sandberg bluegrass, inland saltgrass, blue grama, prairie junegrass, greasewood, Wyoming big sagebrush</i> (S.I. 50–70%)	13–14"	1150 – 1400	800 – 1100	.25 - .35	2.9 – 4.0	850–1200	.27 - .38	2.6 – 3.7
	10–12"	575 – 900	400 – 700	.13 - .22	4.5 – 7.7	450–750	.14 - .24	4.2 – 7.1
3. Short Grasses, Medium Shrubs, Cacti <i>Inland saltgrass, broom snakeweed, Nuttall's saltbush western wheatgrass, annual grasses and forbs, (greasewood)</i> (S.I. 30–50%)	10–14"	500 – 1250	250 – 600	.08 - .19	5.3– 12.5	300–750	.09 - .24	4.2 - 11.1
4. Medium Shrubs, Short Grasses, Cacti <i>Plains pricklypear, inland saltgrass, six-weeks fescue, annual bromes</i> (S.I. < 30%)	10–14"	350 – 825	100 – 300	.02 - .07	14.3 - 50	150 - 350	.03 - .08	12.5–33.3
5. Annual Grasses and Forbs <i>Kochia, Japanese brome, cheatgrass, Russian thistle</i> (S.I. < 20 %)	10–14"	< 350	< 300	.01 - .04	25 - 100	< 350	.02 - .05	20 - 50

Stocking rates are calculated from average forage production values using a 25% Harvest Efficiency factor for preferred and desirable plants, and 10% Harvest Efficiency for less desirable species. AUM calculations are based on 790 pounds per animal unit month (AUM) for a 1,000-pound cow with calf up to 4 months. No adjustments have been made for site grazability factors, such as steep slopes, site inaccessibility, or distance to drinking water.

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12d. Plant Forage Preferences for Cattle and Sheep

Legend: P=Preferred D=Desirable U=Undesirable E=Emergency
N=Nonconsumed T=Toxic Blank=Unknown or no data

Winter (W) = Jan., Feb., March; Spring (SP) = April, May, June;
Summer (SU) = July, Aug., Sept.; Fall (F) = Oct., Nov., Dec.

	Cattle				Sheep			
PLANT NAME	W	SP	SU	F	W	SP	SU	F
Green needlegrass	P	P	P	P	P	P	P	P
Western/thickspike wheatgrass	P	D	D	P	D	D	D	D
Alkali sacaton	P	P	P	P	D	D	D	D
Alkali bluegrass	P	P	P	P				
Bluebunch wheatgrass	P	D	P	P	D	D	D	D
Montana wheatgrass	P	P	P	P	P	P	P	P
Needleandthread ^{1/}	D	D	D	D,T	D	D	D	D
Nuttall's alkaligrass	P	P	P	P	P	P	P	P
Sandberg bluegrass	D	D	D	D	D	D	D	D
Threadleaf and Needleleaf sedge	D	P	P	D	D	P	P	D
Prairie junegrass	D	D	D	D	D	D	D	D
Inland saltgrass	U	D	U	U	U	U	U	U
Blue grama	D	D	D	D	D	P	P	D
Plains reedgrass	D	D	D	D	U	U	U	U
Bottlebrush squirreltail	D	P	D	D	U	D	D	U
Cheatgrass ^{2/}	U	N	N	N	U	P	U	U
American vetch	N	P	P	D	N	P	P	D
Scarlet globemallow	N	D	D	D	N	D	D	D
Other forbs	N	N	N	N	N	N	N	N
Nuttall's saltbush	P	P	P	P	P	P	P	P
Winterfat	N	N	N	N	P	D	D	P
Silver sagebrush	D	D	D	D	D	D	D	D
Wyoming big sagebrush	N	N	N	N	P	D	D	P
Greasewood ^{3/}	N	N	N	N	D,T	D,T	D,T	D,T
Fringed sagewort	N	N	N	N	U	U	U	U
Broom snakeweed ^{4/}	N	N	N	U	U	U	U	U
Plains pricklypear ^{5/}	N	N	N	N	U	U	U	U

^{1/} The awns and sharp seeds of needleandthread can harm livestock when dry.

^{2/} Not a native plant, but a common invader.

^{3/} Can be toxic to sheep in spring if large quantities are ingested.

^{4/} Broom snakeweed can be poisonous, but this is not usually a problem in Montana because plants die back in winter and do not have green leaves in early spring.

^{5/} The spines can be injurious to livestock.

13. Wildlife Interpretations: The following is a description of habitat values for the different plant communities that may occupy the site:

Plant Community 1: Tall and Medium Grasses/ Forbs/ Shrubs (HCPC or PPC): The predominance of grasses plus a diversity of shrubs and half-shrubs in this community favors grazers and mixed feeders such as bison, pronghorn and elk. When this plant community is adjacent to large blocks of sagebrush-grassland, it can provide quality sage grouse lek sites and brood habitat. Complex plant structural diversity and litter cover provide habitat for a wide array of small mammals (both seed eaters, i.e., deer mice, and herbivores, i.e. sagebrush vole) and neotropical migratory birds. Diverse prey populations are available for raptors such as ferruginous hawks and prairie falcons. The diversity of grass stature and life forms, along with scattered shrubs provides habitat for many bird species including the upland sandpiper, sharp-tailed grouse, loggerhead shrike, grasshopper and vesper sparrow, lark bunting, chestnut-collared longspur and western meadowlark. This community is especially favorable for ground-nesting birds because of the abundant residual plant material and litter available for nesting, escape and thermal cover.

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Plant Community 2: Medium and Short Grasses/ Medium Shrubs: An increase in sagebrush cover may benefit sagebrush-grassland obligates such as Brewer's sparrow and sage grouse. Thermal and hiding cover for big game improves with an increase in shrub cover. Loss of tall preferred grasses, residual grass cover and litter generally reduces habitat value for ground-nesting birds. Some species, such as lark buntings, will use this community as sagebrush and/or greasewood cover increases somewhat. Small mammal species diversity declines as the herbaceous plant composition is simplified. The western harvest mouse may take advantage of an increase in greasewood.

Plant Community 3: Short Grasses/ Medium Shrubs / Half-shrubs: The shift to short grasses and annuals plus a loss of ground cover and residual grass greatly reduces habitat value for ground-nesting birds. Small mammal species composition is simplified and dominated by seed-eaters, particularly deer mice. Nutritive value for ungulates suffers from the loss of desirable forbs, shrubs and half-shrubs and palatable grasses. The increase in greasewood may provide thermal cover for big game. The general loss of plant structural diversity significantly reduces wildlife habitat values.

Plant Community 4: Short Grasses/ Cacti/ Annuals: This community has very limited habitat value for wildlife in general following the significant loss of plant species diversity and ground cover. Mountain plovers and horned larks may nest on the sparsely covered surface. Sage grouse may use this community for lek sites when it is adjacent to sagebrush-grassland.

Plant Community 5: Annual Grasses and Forbs: This community is found on "go back" land following abandonment of cropping. Wildlife habitat values are very limited because of a lack of plant species and structural diversity and ground cover.

13a. Plant Preferences for Antelope and Deer:

Legend: P=Preferred D=Desirable U=Undesirable E=Emergency
N=Nonconsumed T=Toxic Blank=Unknown or no data
Winter (W) = Jan., Feb., March; Spring (SP) = April, May, June;
Summer (SU) = July, Aug., Sept.; Fall (F) = Oct., Nov., Dec.

PLANT NAME	Antelope				Deer			
	W	SP	SU	F	W	SP	SU	F
Perennial grasses	P	P	P	P	D	P,D	D	D
Annual grasses	N	P,D	N	D	N	P,D	N	D
Sedges	D	P	P	P	D	P	P	P
American vetch	P	P	P	P	D	P	P	P
Remaining forbs	N	N	N	N	N	N	N	N
Winterfat	P	P	P	P	P	P	P	P
Silver sagebrush	D	D	P	D	P	P	D	P
Nuttall's saltbush	P	P	P	P	D	P	P	D
Wyoming big sagebrush	P	P	P	P	P	P	D	P
Greasewood	P	P	D	D	P	P	D	D
Fringed & green sagewort	N	N	N	N	N	N	N	N
Broom snakeweed	N	N	D	N	D	D	D	D

Ecological Site Description—Rangeland

Silty–Saline, 10–14" MAP

MLRA: 58A – Sedimentary Plains, East
MLRA: 60B – Pierre Shale Plains, East
R058AE193MT, R060BE580MT

14. Hydrology Data: The runoff potential for this site is moderate, depending on slope and ground cover/health. Runoff curve numbers generally range from 66 to 84. The soils associated with this ecological site are generally in Hydrologic Soil Group B. The infiltration rates for these soils will normally be moderately slow.

Good hydrologic conditions exist on rangelands if plant cover (grass, litter, and brush canopy) is greater than 70%. Fair conditions exist when cover is between 30 and 70%, and poor conditions exist when cover is less than 30%. Sites in high similarity to HCPC (Plant Communities 1 and 2) generally have enough plant cover and litter to optimize infiltration, minimize runoff and erosion, and have a good hydrologic condition. The deep root systems of the potential vegetation help maintain or increase infiltration rates and reduce runoff.

Sites in low similarity (Plant Communities 3, 4, and 5) are generally considered to be in poor hydrologic condition as the majority of plant cover is from more shallow-rooted species and shrubs.

Erosion is minor for sites in high similarity. Rills and gullies should not be present. Water flow patterns, if present, will be barely observable. Plant pedestals are essentially non-existent. Plant litter remains in place and is not moved by erosion. Soil surfaces should not be compacted or crusted. Plant cover and litter helps retain soil moisture for use by the plants. Maintaining a healthy stand of perennial vegetation will optimize the amount of precipitation that is received. (Reference: Engineering Field Manual, Chapter 2 and Montana Supplement 4).

15. Recreation and Natural Beauty: This site provides some recreational opportunities for hiking, horseback riding, big game and upland bird hunting. The forbs have flowers that appeal to photographers. This site provides valuable open space and visual aesthetics. Caution should be used during wet weather periods.

16. Wood Products: None

17. Site Documentation:

Authors: Original: REL, AJN, 1983 Revised: JVF, REL, RSN, MJR, SKW, SVF, POH, 2003

Supporting Data for Site Development:

NRCS–Production & Composition Record for Native Grazing Lands (Range-417): 2

BLM–Soil & Vegetation Inventory Method (SVIM) Data: 2

NRCS–Range Condition Record (ECS-2): 5

NRCS–Range/Soil Correlation Observations & Soil 232 notes: 15

Field Offices where this site occurs within the state:

Baker	Ekalaka	Hysham	Sidney
Billings	Forsyth	Jordan	Terry
Broadus	Glendive	Miles City	Wibaux
Circle	Hardin	Roundup	

Site Approval: This site has been reviewed and approved for use:

Rhonda Sue Noggles
State Rangeland Management Specialist

06/30/03
Date

Ecological Site Description—Rangeland

Silty–Saline, 10–14" MAP

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Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 1
HCPC /PPC



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 1
HCPC /PPC



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 1
HCPC /PPC
Custer County

Ecological Site Description—Rangeland

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Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 1
HCPC /PPC
McCone County



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 2
McCone County



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 2
Prairie County

Ecological Site Description—Rangeland

Silty–Saline, 10–14" MAP

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Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 2
McCone County



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 3
Rosebud County



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 3
Carter County

Ecological Site Description—Rangeland

Silty–Saline, 10–14" MAP

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Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 4



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 4
Rosebud County



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 5
Cropped site

Ecological Site Description—Rangeland

Silty–Saline, 10–14" MAP

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Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 5
Cropped site



Silty Saline 10-14"
Sedimentary Plains, east
Plant Community 5
Rosebud County